

The ideal landscape and its ecological planning approach in Mount Lushan National Park, China

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Abstract: This paper described the main four basic models of ideal landscape in the Mount Lushan National Park as Kunlunshan model, Xumishan model, Peach flower land model, Christian model. Five typical places in Mount Lushan with the ideal landscape characteristics like the East Grove Temple, White Deer Cave Academy, Simplicity and Tranquility Monastery, Lushan Valley, and Villa-cluster of the East Valley were analyzed, and the integration of the basic models for each place was discussed to make the realistic landscape conform to the ideal needs. Moreover, the discussions also involved the characteristics of ideal landscape that are featured in resource, culture, structure, function, process, scale and region. In conclusion, ideal landscape in the Mount Lushan National Park was the product of the interaction between human and nature. Mount Lushan inherits the essence of Chinese traditional culture with a history of more than 1000 years; and it also absorbs the manna of the Western culture as well as the exchanges between nature and humanities together with the conflict and adaptation among different cultures. The natural landscape could be satisfied with the survival demand and cultural taste of mankind by the way of ecological planning.

Keywords: ecological planning; ideal landscape; landscape model; Mount Lushan National Park

Introduction

Landscape assessment is one of hotspots within the fields of landscape ecology and ecosystem management (Fu et al. 2003). Most of researchers pay close attention to the landscape aesthetic evaluation (Blasco et al. 2009; Wen et al. 2009). Daniel (2001) summarized the contest between expert and perception-based approaches of landscape quality assessment. Until now, research findings of landscape assessment have extended various fields.

Fuzzy set theory (Steinhardt 1998), psychophysical approach (Daniel 2001), internet survey technique (Roth 2006), landscape ecological assessment (Mörtberg et al. 2007), and local stakeholders are taken into account their values and assumptions in assessing visual and non-visual aspects of different landscape scenarios (Soliva & Hunziker 2009). Cultural identity is strongly associated with the ways in which people interact with their landscapes (Stephenson 2008), and humanity pursues a perfect landscape, an ideal landscape model. Both eastern and western researchers have been looking for ideal landscape models and channels from the nature of flora and fauna, and the traditional culture (Ruiz & Gonzalez-Bernaldez 1983; Simonds 1983; Soliva 2007; Yu 2000a; 2000b). Yu (2000b) discussed the effect of *Feng-shui* on the development of Chinese ideal landscape. He and Luo (2000) attempted to find the relationship between *Feng-shui* and the environment as the case study of Southeast China. *Feng-shui* is also the principle in the other countries of East Asia, some Korean researchers have highlighted and applied the concept of *Feng-shui* to the urban landscape planning (Hong et al. 2007; Whang & Lee 2006). Wang (2002) and Liang et al. (2005) clearly proposed the concept of ideal landscape, and discussed the composition and structural function of ideal landscape. Ideal landscape has some realistic significance for understanding the traditional life style, protecting the traditional culture, evaluating and planning all kinds of landscapes, and for developing the tourism industry (Antrop 1997; Harrison 2005; Lushan Con-

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struction Institute 1996).

Ideal landscape is a result of the interaction between humans and nature. In recent years, China has been experiencing a rapid urbanization, which poses a severe threat to the healthy development of the urban environment. Landscape is an important component of the urban ecosystem and plays an essential role in enhancing the urban ecosystem functions and promoting the healthy development of the urban settings. Mount Lushan, as China's only world cultural landscape site, shows various ideal landscapes that developed integrally over time. An examination of Mount Lushan's typical ideal landscapes helps for a deep understanding of the features and functions as they relate to ideal landscapes. In addition, a historical examination of the planning, construction, and development of ideal landscapes may provide useful references for us to plan and build better living environments.

Materials and methods

Study area

Mount Lushan National Park, is located at the interchange of Xingzi County, Jiujiang County and Lushan County in Jiujiang City, Jiangxi Province, China, stretching between 115°52'–116°08' E and 29°26'–29°41' N, with a total area of 305.2 km² (Fig. 1). There are a variety of landforms such as rivers, lakes, slopes and mountains in the study area. Big Hanyang, the highest peak of Mount Lushan, has an altitude of 1 474 m above the sea level, Mount Lushan overhangs the area between Poyang Lake and the Yangtze River. The existing forest coverage is up to 76.6%, and there exist more than 3 000 plant species, 2 000 insect species, and 33 mammal species. Its average annual rainfall is 1 833.5 mm with an average of 190.6 foggy days; and the average relative humidity being 78%. Lushan culture has been a huge accumulation, left more than 4 000 poems created by over 1 500 poets and the well-known heritage groups of cultural landscapes such as East Grove Temple, White Deer Cave Academy, Kwan-yin Bridge, villa-cluster etc. In 1982, Mount Lushan National Park was classified as the first batch of key national scenic spots; in 1996 inscribed on the World Heritage List as "World Cultural Landscape" by the UNESCO; in 2004 again awarded as the first World Geopark in China. Beautiful natural scenery and rich cultural deposits make the park both a displaying site for ideal landscape under Chinese traditional culture system and embodiment of Western ideal landscape in China.

Data gathering

The following steps and methods were followed to analyze some typical landscapes:

(1) Collect various historical documents of Mount Lushan, in which we can get useful information about the landscape in history. *Mount Lushan Chronicles* is the most comprehensive works (WU 1996), describing the whole landscape and almost each scenery in detail, and expressing perfect ideas from all kinds of

occupations.

(2) Make an on-the-spot investigation from 2005 to 2008. Based on the relief maps and tour conductors, the researchers climb up most of mountains, pass through most of woods, stride over most of rivers, visit most of villages, and then five typical sites are picked: East Grove Temple, White Deer Cave Academy, Simplicity and Tranquility Monastery, Villa-cluster of the East Valley and Lushan Valley. East Grove Temple is the root of Pure Land Buddhism, representing the typical Buddhism landscape; White Deer Cave Academy is the brand of Confucianism, representing the typical Confucian landscape; Simplicity and Tranquility Monastery is the source of Taoism, representing the typical Taoism landscape; Villa-cluster of the East Valley is the big show of exotic architectural complex, representing the typical western cultural landscape; Lushan Valley is the dream of traditional scholar, representing the romanticism landscape (Fig. 1).

(3) Break down the landscape by the qualitative analysis, so as to understand the structure and process of large-scale landscape.

(4) Compare realistic landscape with ideal landscape; therefore, we can discuss the characteristics of ideal landscape and its ecological planning approach.

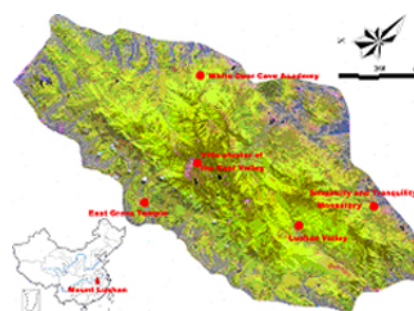


Fig. 1 Location of Mount Lushan and five typical landscapes

Basic models of ideal landscape

The basic models of ideal landscape can be divided into four types: model of fairyland, model of artist, model of statistic psychology and model of *Feng-shui*, and sub-models are as follows: Kunlunshan model, Penglai model, Pot Sky model, Xumishan model, Peach Blossom Land model, and Endocentric Settlements model, etc.

Results

The basic types of ideal landscape in the Mount Lushan National Park are shown as follows, with obvious characteristics in some typical sites.

Kunlunshan model

As one of the famous mountains in China, Mount Lushan was also originated from the primitive worship, especially derived from worship of high and big mountains. The name of Lushan has always been in discussion, and one representative viewpoint derives from the myths and legends. Huiyuan, the pioneer of the

Chinese sect of Buddhism, has made perfect explanatory notes in his *Jotting of Mount Lushan*. In terms of the resource characteristics of Mount Lushan, he wrote: “There are all kinds of birds, vegetation, immortal medicine and so on, but I can only take few for example”. In terms of the scale characteristics, “The Mountain has seven high and huge ridges with each having the length of 250 km”. Under this circumstance, the Mountain is, on the one hand, with “high rocks and steep cliffs almost touching the sky which mankind and animals cannot climb”, and has a strong sense of spatial isolation effect on the other. On the top of the Mountain there lived a faerie named Mr. Kuangxu during the period of *San* and *Zhou* Dynasties, who “built the house on the high rocks”. This model embodies the thought of Taoist, and reflects landscape ideal in Ancient China, its influence reaches up to the emperor and down to the mass.

Xumishan model

In the year 340 A.D., Guizong Temple, the first Buddhist temple in Mount Lushan, was established. Forty years later, great efforts were made by Huiyong and especially Huiyuan to construct and develop the temple. Buddhism atmosphere was enhanced day by day and East Grove Temple became the ancestor yard of Jodo. From *Tang* and *Song* Dynasties to *Ming* and *Qing* Dynasties, the Mountain has taken on the scene of “temples everywhere”, “Buddha everywhere”. Observed from a single temple landscape, box within box expressed by Xumishan model is just the case. Take East Grove Temple for an example, Huiyuan described that: “The north of the temple stands the mountain and the front flows two rivers. The mountain ridges look like a living dragon on the left and a pagoda on the right”. Zha Shenxing (a poet of *Qing* Dynasty), deeply analyzed the landscape composition: “the temple is located at the foot of the Mount Lushan, Cernser Peak, Pulpit Peak, Heavenly Pond Peak, they all stand erect in the south with forest, and one of the branches surrounds the temple sites ranging from east to north and west”. Just as the records in *Hierarch Biography*: “the delicate temple that was constructed by Huiyuan and that faces the Cernser Peak and is accompanied by the waterfall-featured gully, perfectly reflects the natural beauty of what a mountain embodies. And then with stones the foundation was laid, around the temple pines were planted, around the steps streams were arranged and mists floated around. Moreover, many Buddhist rooms were delicately constructed, featured by forests and mists, paths with lichen-covered stones. The whole landscape implies an atmosphere of vigor and solemnity”.

Peach flower land model

In the long history, a total of over 1 500 poets visited Mount Lushan, most of whom were celebrities living a secluded life here. They were the representatives of traditional Chinese ideas and thoughts. Meanwhile, the place where they dwelled and studied mirrored their pursuit of ideal landscape. Tao Yuanming (the pioneer of Chinese pastoral poetry in *Eastern Jin* Dynasty), constructed a group of ideal landscape called Peach Flower Land

with Mount Lushan as the background. In the macro-scale, Xingzi county, the place where Tao Yuanming spent the greater part of his lives, is “the stronghold of South China and the key of North China, with Yangtze River and Poyang Lake lying in the front and Five-Old-Man Peak and Jiuqi Peak standing behind; the location of the county controlled the Wuling Mountain and Sanwu Area, with all rivers from west converged here and thus a large amount of water from all directions stored here, occupying the upper reaches of the Yangtze River” (County Annals Compilation Committee of Xingzi County in Jiangxi Province, 1990). In the middle-scale, the model of the Peach Flower Land appears in the Lushan Valley, which is regarded as the prototype place of Peach Flower Land. In the micro-scale, from Guizong where Wang Xizhi (the greatest calligrapher in Chinese history) read in *Jin* Dynasty to Lushan Thatched Cottage constructed by Bai Juyi (a famous poet) in *Tang* Dynasty, as well as White Deer Cave Academy developed from White Deer Cave where Li Bo (a famous poet) read, all can fall into this model.

Christian model

In the late 19th century, under the aegis of the bayonets, the model was introduced to various parts of China, among which the most typical one is the opening of Kuling summer resort. In the special historical background, Edward Selby Little, an English missionary, developed summer resort on the top of Mount Lushan based on the excellent geographical conditions, which the Christian ideal landscape model took root in China.

Discussions

Characteristics of ideal landscape

Ideal landscape is actually the exterior reflection of human's ideal pursuit, which deeply expresses the cultural gene on individual, community, nation and country levels through landscape options and landscape construction methods. The ideal landscape is characterized by its:

- Resource, which consists of the living and non-living resources;
- Culture, which is the product of human thinking beyond materialization;
- Structure, which is the spatial layout treatment of resource components according to cultural needs;
- Function, which is a unity of utility and illusion which can satisfy realistic demands by pursuing;
- Process, which is the reflection of the change of the ideal landscape models with time going on;
- Scale, which pursues the unity of macro-scale and micro-scale by following the principle of mutual compensation;
- Region, which changes correspondingly due to the impact of geographical environment and culture.

Integration of basic models

Because of differences in the resource component and culture

mechanism that form the ideal landscape, these four basic models, penetrated and were interwoven with one another under the influence of the era change, geographical environment, external factors and unexpected factors. Viewing from the long history of Mount Lushan, we find that the basic types don't include all the ideal landscapes of Mount Lushan National Park, and especially the landscapes formed during modern times and experienced to influence by Western culture, therefore, the ideal landscapes in the park become more and more diverse and complex.

1) Integration of Xumishan model, Kunlunshan model and *Feng-shui* model

East Grove Temple, in northwestern Mount Lushan, situated at the entrance to the Scissors Valley, is about one kilometer away from No.105 national highway. Though the valley it is quite close to Jiujiang county and Jiujiang city, it is the rural to a large extent. There are nine natural villages, including Qiaoxia, Tujia, Zhoujia, Xiongjia, Wangjia, Jinjia, Zhangjia, Hongjia, and Liujia, with a total population of over 2 000 people. The stream, originated from Kuling Yaowa, winds its way to the west, passing the temple gate. The famous ancient Tiger Stream Bridge was built above this stream. Huiyuan gave a detailed description to the environmental landscape of East Grove Temple in his *Jotting of Mount Lushan*. A fountain effuses from underground, warm in the winter and cool in the summer, and its flowing rate reserves free from seasonal changes. The temple faces the big mountain with many exotic woods, whose height is much taller than that of the average trees, it seems that the average small trees look like white clouds. There is a singular Cernser Peak in southeast, where the flowing mists shroud on the top just like a fragrance smoke, and the white clouds clothe the peak, which endows it with striking difference from other peaks. There are evergreens on the left where ultramarine sparrow, white apes and black birds habitat. Lu You, a famous poet during the *Song* Dynasty, gave an explicit analysis to this landscape: "the temple faces the Cernser Peak, and one branch of the Peak spreads to the east, then goes from the north to the west, finally, the branch encircles the temple in four directions like a castle". The geomancer called the landscape Daogualongge, a wonderful place (Wu 1996). Based on the old scriptures, we can summarize the characteristics of the East Grove Temple as follows:

- The original expression of Taoist ancestor. Huiyuan portrayed the top of Mount Lushan as a fairyland before mankind could reach. The construction of the temples by Hui Yuan and his disciples laid the ideological foundation;

- Profound influence of classic *Feng-shui* concept, which was embodied obviously in Lu You's description;

- "Box-within-box": In the large-scale sense, Mount Lushan has not yet become the country's political, economic and cultural center, but it is just the geographical centre of China's territory, eastward facing the Poyang Lake and westward facing the Yangtze River, which constitutes the first box. In the middle-scale, the valleys of Mount Lushan are encircled by peaks and rivers, which constitutes the second box. In the micro-scale, the place where the East Grove Temple was built has been claimed to be the broadest part of Scissors Valley. The temple embraces mountains and rivers both to the south and to the north; to the east,

there is a breach of the Scissors Valley, and to the west, there is a breach formed by West Grove Temple and the branches of Mount Lushan, which constitutes the third box.

2) Integration of Kunlunshan model, *Feng-shui* model, Pot Sky model, Peach flower land model, and Endocentric Settlements model

Simplicity and Tranquility Monastery was originally called Taixuguan, which was changed to its current name in memory of Lu Xiuqing. Lu Xiuqing, who wrote the first chronicle of Taoism was posthumously named "Mr. Jianji" (literally means simplicity and tranquility)" after his death. Simplicity and Tranquility Monastery is under the Golden Rooster Peak in Xingzi county, south of the Mount Lushan. It is also at the back of Rooster Cage Peak, in front of which are several natural villages including Guojia, whose altitude is 160 m. As the cradle of the Southern Heavenly Teacher Sect, Simplicity and Tranquility Monastery occupies an important position in China's cultural history. The research of this landscape structure plays a positive role in the understanding of ideal Taoist landscape features. Sang Qiao in *Ming* Dynasty, gave a detailed description to the Monastery: "A branch of Golden Rooster Peak spreads from the north to the south, finally it forms a ring mountain range, the Monastery is located there". This kind of landscape doesn't explicitly show which ideal landscape model it belongs to, but we can find out the common point-gourd shape among such models as Kunlunshan model, the Peach Flower Land, and Endocentric Settlements model. Luzhu Peak (292 m height), Censer Peak (747.7 m height), Double Sword Peaks (832.8 m and 1 324.4 m height for each peak), Big Hanyang (1 473.8 m height), Gold Rooster Peak (1 192 m height) and Hencoop Peak (360 m height) form the cavity of a pot. Hencoop Peak and branch range of Censer Peak (the top peak named Zhangjia Peak, 167 m height) form a breach. Interestingly, the south of the pot has an isolated hill (named Shangwangtou, 137.8 m height). A stream coming from quebrada, flows into Poyang Lake between Zhangjia Peak and East Bull Mountain (546.6 m height), and the long valley forms the second pot. The west-south of Shangwangtou hill is a strip space between Gold Rooster Peak and West Bull Mountain (328.4 m height), about 3 km², if we go further toward south between West Bull Mountain and Hualin Mountain (250 m high), we can also reach the Poyang Lake. The long valley forms the second breach.

3) Integration of Pot Sky model, Peach flower land model, and Endocentric Settlements model

In recent decades, although debates as to where the Peach Flower Land was originally located have never ended, no one knows the true answer (Liu 2004; Zhu 2004). By comparing with ideal model of Peach Flower Land model, we can find the landscape structure of Lushan Valley has the following characteristics:

- Lushan Valley is long and narrow. The valley, with the length of 12 km from the entrance to Yangtianping Plain and the maximum width of one kilometer, is situated in the southeast of Mount Lushan. Both sides of the valley are high mountains with an altitude of over 900 m, 12 of which are over 1 000 m. The main peak of Mount Lushan National Park, the Big Hanyang

Peak, is adjacent to the east. The high chain of mountains in both sides forms a long corridor in “pot” shape.

• Lushan Valley has rich resources. In addition to the natural supply of wood resources, there is also self-sufficient farming land within the valley which could meet the needs of monks in the 1930s. Lu River, originated from Yangtianping Plain and Hanyang Peak, is not only the portable water for more than 1 400 people’s life in nine natural villages but also the source of the agricultural production. Water resources and the landscape patterns play an important role in the ideal landscape model of Lushan Valley. In recent years, resource capacity in the valley has been greatly reduced due to the population growth.

Planning of realistic landscape

Although there are all kinds of ideal landscape models, ideal landscape is only an ideal. By analyzing the typical landscapes, we can find that various planners and constructors indistinctly or distinctly used the ecological planning approach, striving to fulfill their ideal landscape and landscape ideals. Some ways of ecological planning are as follows:

1) Emphasizing site selection, as far as possible selecting the areas that have favorable natural resources, convenient communication and private space.

Based on this topography and geomorphology, site selection of *Simplicity and Tranquility Monastery* had been full proved, the planner must make an overall on-the-spot investigation, hill features and physical features of a place obey the ideal landscape predilection of Taoism. But we also observe the difference with other landscape planning and constructing.

In the same way, Buddhists also pay more attention to site selection and even buildings’ micro-layout. East Grove Temple is arranged orderly and harmoniously. The main buildings, Mountain Gate, Mahavira Palace, and Good Luck Palace in turn, are laid out lengthwise. On both the left and right sides of the Mahavira Palace are five hundreds of Buddhist Arhat, and then westward and eastward stretch out the Parlor, Drawing room, Reception room, Jiangxi Buddhism Institute, Buddhist scripture library, and Institute of East Grove Temple Pure Land. In front of Mahavira Palace is Heaven King Palace, and at the back are Jade Buddhist Palace, Three Laughing Room and Eighteen Wise-men Room. Behind the Three Laughing Room are Sutra Library and Smart Fountain..

2) Understanding regional function of natural resources and natural environment, and also paying attention to regional culture, especially conserving and continuing the intrinsic cultural context.

Lushan villas mainly located in the area of East Valley in Kuling, are the representative of positive planning way. In 1894, a survey group organized by Edward Selby Little, climbed from the foot to the top of the mountain; at last, they found the East Valley was the most suitable place to build villas (Stone & Reed 1921). Thirty years later, when Professor Li Siguang, the eminent geologist, gave an scientific explanation about Kuling being suitable for living: “East Valley winds to the southwest from the northeast direction, the Bull Ridge lays in the west, and Big

Moon Mountain shelters in the east, which is a typical mountain basin landscape” (Wu 1996). Influenced by the geographic environment and the traditional culture, planning and construction of the East Valley was also marked by the Chinese traditional ideal landscape although it was operated by foreigners. The planning started in 1895, was initially completed in 1899 and expanded in 1905. Planning consisted of two key components: one was the road traffic planning, which was divided into outbound traffic, community traffic and internal traffic; the other was land-use planning. In the road grid, every box with an area of about 2 800 m² was marked off and a set of villas were built in each piece of land. Natural yards were formed in the surroundings of each set of villas, and the building density was controlled below 15%. The terrain was flat on both sides of the valley, which was used as the sites for park and traffic. The slope below 30° was used as construction sites. The planning has seven characteristics as following: stringent, systematic and scientific social investigations and scenic resource surveys; the important decision of building green belt along the river; town layout of rural villa style; pluralistic architectural style; organization of tour route combined with natural landscape; adaptation to the modern social function; enrich community life through the complete public facilities, thus the planning practice and develop the theory of landscape architecture and the method of Garden City (Liang et al. 2005). The successful planning and construction of the East Valley was the result of western ideal landscape in China; on the one hand, through the town on the top of mountain in Kuling, Edward Selby Little displayed the unique western landscape; on the other hand, through appropriate hidden mountain basins, the western paradise had been harmonized with Chinese traditional culture, and then, western and Chinese culture reach a mutual adjustment in terms of the ideal landscape.

3) Adapting environment in an active way, we can be in conformance with harmonious relationship between natural ecosystem and humanistic ecosystem by the way of land consolidation, functional zoning, park essays and landscape naming.

Based on the good natural landscape, ancient designers of scholars made the landscape of White Deer Cave much satisfy their own landscape ideal by a variety of ways. Li Bo is the first poet to built his own thatched cottage in Mount Lushan, the second cottage following Bai Juyi (Li 1989). Zhu Xi played a significant role in the planning and construction, the academy architectural complex are built in series, including Academy Gate building, Ziyang Academy, Bailu Academy, Yanbin Hotel, etc. All the buildings face south, leaning against the hill and closing to the stream, and all the planning and construction draw much from geomancy law.

• Garden parergon’ strengthening effect on the ideal landscape. Except for the construction of the main building, such diversified garden parergon as pavilion, bridge, memorial archway and carved stone are also deployed. Compared with the general parergon of *Feng-shui* in countryside, the garden parergon of the Academy bears more breath of Neo-confucianism theory, for instances, the Solo-appreciating Pavilion on the rock lying in the stream, Sextuple Pavilion on the Refluence Mountain, Tai Chi Pavilion, Deer Cry Pavilion, and Loyalty Pavilion on the Back

Screen Hill.

- The strengthening function of landscape naming. The naming of various landscapes in White Deer Cave Academy is not only the intensification of material landscape, but also the profound expression of Confucianism. Besides the fact that the former names of pavilion and dais originated from literature works, the naming of the natural landscape also integrated literati's thinking, such as Neo-confucianism Stream, Pillow-water Stone, Outstanding Hill and Sacred Fountain, etc (Liu 2002).

- White Deer Cave Academy actually integrates man's adaptation and alteration towards the nature, and what we see now is the masterpiece of integrating human historical culture into the natural environment.

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